

**Quick Reference Sheet**  
**800 MHz Radio Operations Guide**  
**Motorola MTS 2000 II Portable Units**

**TURNING THE RADIO ON OR OFF:**

Turn on/off/volume control: (control #1 on attached radio diagram)  
Clockwise = on  
Counterclockwise = off

**SELECTING ZONE (BANK):**

The radio is equipped with three zones or banks labeled A, B, and C, which are controlled by the toggle switch (control #4).

**A** = (Always) it the primary operational setting and should be used for routine operation.  
**B** = (Backup) it is the redundant backup zone should the A-bank fail. If your radio says “Site Trunking” or “Fail Soft” in LED screen switch to the B-bank.  
**C** = (Cause) switch to this bank beCause someone told you to.

**SELECT THE DESIRED MODE (TALKGROUP):**

Modes are also known as channels or talkgroups. Each radio can have up to 16 talkgroups per bank. (See the talkgroup listings and key for your radio group.)  
Select the desired talkgroup with mode control knob (#2). The LED display shows the talkgroup name.

**SETTING VOLUME:**

1. Turn the radio on and select zone and mode (bank and talkgroup)
2. Listen for a transmission, then adjust volume control to a comfortable level

**RECEIVING:**

1. Turn radio on.
2. Select zone and mode (bank and talkgroup)
3. Set volume. You are ready to receive on selected zone and mode.

**TRANSMITTING:**

1. Turn radio on.
2. Select zone and mode (bank and talkgroup)
3. Set volume.
4. Monitor selected talkgroup to be sure no one else is using it.
5. When channel is clear, depress and hold the PTT (push to talk) button (#10) to talk (transmit).

6. Wait until a solid red LED light appears on top of the radio, which indicates that the radio is ready to transmit. If you hear a loud tone, it means there is not an available channel. You should try again after a pause of a couple of seconds.
7. When the red light indicates a steady red, speak directly into the microphone in the middle of the radio, holding the radio approximately 2-inches from your mouth.
8. Release PTT to listen (receive).

**TRANSMITTING WHEN SYSTEM IS VERY BUSY OR OVERLOADED:**

During times of very heavy usage, such as immediately after an earthquake or major event, you may not be able to immediately get a channel on which to talk. You will hear one of two tones: a steady continuous bonk or an intermittent bonk that sounds like a bah-bah-bah-bah busy signal.

**Steady Bonk** - means that you did not connect with the system.

1. Release the PTT switch.
  2. Pause and depress the PTT switch again.
- Intermittent Bonk (bah-bah-bah-bah)** - means that you have connected with the system and are on hold until a channel becomes available.

1. Release the PTT switch and wait for the call back tone, which sounds like “di-di-dit”. The red LED light will also blink.
2. When you hear the call back tone you will have three seconds to press the PTT switch, allowing you to make your call without getting another busy signal.
3. The red LED light will be lit continuously while the radio is transmitting.

**Important note:** If after you get the intermittent bonk (bah-bah-bah-bah) you rekey your radio before you receive the call back tone (di-di-dit) you will put yourself back at the bottom of the waiting list. Do not re-key your radio unnecessarily or try to switch repeater sites. This takes up connection time and further bogs down the system. In times of very heavy usage you may have to wait up 12 seconds for a channel, but the average will be 1-4 seconds, so be patient.

**KEYPAD AND LED SCREEN LIGHT:**

Pressing the blue button on the topside of the radio activates the keypad light.

**AUTOMATIC MULTIPLE SITE SELECTION:**

Your radio automatically selects the nearest radio repeater site with the strongest signal. If your signal is breaking up you can force the radio to change the repeater site.

1. Push second button from the top on the side of the radio (control #8) and release.
2. The repeater site will show on the LED screen followed by the radio signal strength (shown as RSSI: and a number)
3. Signal strengths (RSSI) will go as high as 140, but 80-120 is normal. Any RSSI <65 will be unusable.
4. If your signal is low press and hold the button to force a change of repeater sites.
5. Check your signal strength again. If the signal strength is not improved then that is the best signal you are going to get at that location.

**SCAN OPERATION:**

**Turning Scan On –**

1. Put scan select switch (Control #3 - directly under the talkgroup selector knob) in the “scan on” position. On = O. Off = 0.
2. When scan is on a Z with an arrow pointing to the right will appear on the LED screen.
3. You can now hear radio communications that occur on the channels your radio is set to scan.

**Turning Scan Off –**

1. Turn scan select switch (control #3) to off position 0.
2. Radio stops scanning and the Z with an arrow pointing to the right will disappear from the LED screen.
3. The radio will now monitor only the talkgroup selected and shown on the LED screen.

**Selecting or Deleting Scan Talkgroups –**

1. Press either arrow ( ◀ ▶ ) on the keypad
2. Three boxes will appear on the screen MUTE, PROG, VIEW
3. Press the • - Button under the PROG box
4. The SCAN box will show in the LED screen
5. Press the • - Button under the SCAN box
6. The Z - with an arrow pointing to the right will appear on the screen, as well a flashing rectangular box, which indicates that you are in the scan program mode.
7. To view the talkgroups, which are currently programmed to be scanned, turn the talkgroup knob through the various talkgroups.

8. If the talkgroup is on the scan list the Z –with an arrow pointing to the right will appear on the screen pointing to the flashing rectangle. If there is no Z in the screen then the talkgroup is not currently setup to be scanned
  9. To add a talkgroup press the blue button on the side of the radio (control #7)
  10. To delete a talkgroup press the blue button on the side of the radio (control #7)
  11. When finished push the HOME key.
- Viewing Selected Scan Group (the quick way)**
1. Press either arrow ( ◀ ▶ ) on the keypad
  2. Three boxes will appear on the screen MUTE, PROG, VIEW
  3. Press the • - Button under the VIEW box
  4. The SCAN box will show in the LED screen
  5. Press the • - Button under the SCAN box
  6. Press either arrow ( ◀ ▶ ) on the keypad to scroll through the list
  7. Press HOME to return to normal operation

**Notes on Scan Operation:**

1. Scan operation is only available on the A-bank.
2. To transmit to someone on a different talk group you must turn your talkgroup control knob to the talkgroup that they are monitoring. If they are not scanning the talkgroup that your radio is transmitting on they will not hear you.

**MUTING KEYPAD TONES:**

It is best to leave the tones on during radio operation, but if you wish to turn them off here is how:

1. Press either arrow ( ◀ ▶ ) on the keypad
2. Three boxes will appear on the screen MUTE, PROG, VIEW
3. Press the • - Button under the MUTE box
4. The LED screen will say TONES ON or TONES OFF to indicate current status and then switch to a yes or no selection
5. Press the • - Button under Yes or No to turn on or off.

**HOME BUTTON:**

When programming or viewing scan lists, or turning the mute on or off the HOME button will always reset the radio to regular operation. Use it to escape back to normal operation.

**BATTERY LIFE:**

A fully charged battery will operate the radio for 8-16 hours of usage, or up to 24-hours on standby. It takes 10-times the power to transmit as it does to monitor, so the more you transmit the more quickly the battery is depleted. If the

battery strength runs low a flashing battery icon will appear in the upper left hand corner of the LED screen and a high pitched chirp will indicate that it is time to change or re-charge the battery. It takes approximately 1-hour to charge a depleted battery, however it is best to leave the battery on charge for 1-2 additional hours after the green light appears on the battery charger. The charger determines the amount of charge the battery needs. You do not have to wait until the battery is completely depleted to re-charge, but do not put fully charged batteries back on the charger just to top them off. Do not leave your radio on when it is on the charger.

EMERGENCY RADIO PROTOCOLS

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- **Identification** - Identify yourself (by name or title), your division and radio talk group at the beginning of radio transmissions, *“This is John Smith of the Wastewater Treatment Division calling the King County ECC on talkgroup WTD-East. Do you read?”* This is important so that a person monitoring multiple talk groups will know how to contact you.
- **Acknowledgment** – *“This is the Robert Jones at the King County ECC go ahead.”*
- **“Will do” or “Copy”**- It is important to acknowledge the receipt and understanding of radio messages and instructions, especially

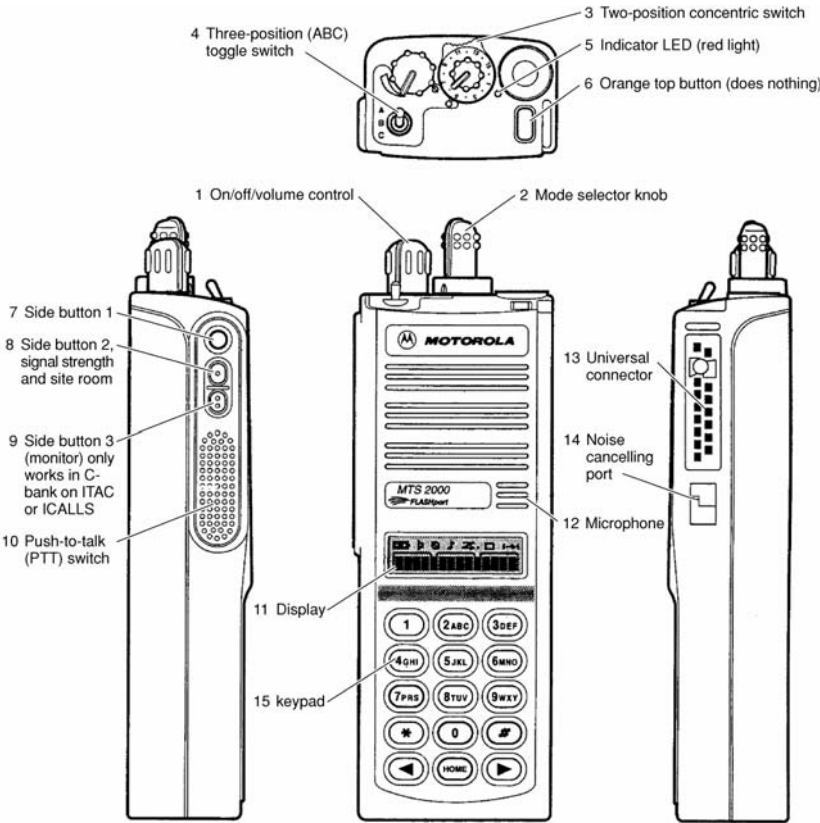
those directed to individuals. The recipient should respond, *“Yes I understand”*, or *“Copy that”*, to indicate understanding. If the message was sent to multiple persons they should respond, *“This is Smith, copy, thank you”*.

- **Clarity** - In emergency situations it is important to speak clearly and slowly. If you do not understand the message ask the sender to repeat, *“Main Control, I did not copy.”* Or, *“Come again”*
- **Be Concise** – Conversation should be in clear concise statements. In times of regional

emergencies airtime is premium and must be shared by many.

- **Switch to a less busy talkgroup** – If you are monitoring a busy talk group and make contact with a person with whom you need to have an extended conversation, switch to a less busy talkgroup. Be sure that you switch to a talkgroup that the other person can monitor.
- **End of Conversation** - Indicate completion of conversation, *“Smith- out”* or *“Smith – Clear”*

Controls, Switches, and Indicators MTS 2000 II Radio



KING COUNTY OFFICE OF EMERGENCY MANAGEMENT RADIO TALKGROUPS, 800 MHz Trunked Radio System (All King County Radios are programmed with these emergency talk groups)

BANK A	FUNCTION	LEAD AGENCY
KCEOCCOM	King County EOC Common - always monitored when the Emergency Operations Center (EOC) is open - Use this to call the EOC.	KC OEM
KCEOCOPS	Emer Mgmt tactical talk group used throughout King County	KC OEM
KCEMZ1	Emer Mgmt tactical talk group used for agencies in NE King Co.	KC OEM
KCEMZ3	Emer Mgmt tactical talk group used for agencies in SE King Co.	KC OEM
KCEMZ5	Emer Mgmt tactical talk group used within the City of Seattle	KC OEM
CABINET	Talk group used by the executive, his cabinet, and other elected officials for coordination	EXEC
Agency Specific	Talk groups as appropriate for your department and/or division.	
BANK B	FUNCTION - Back-up	
This bank is considered a ‘back-up’ track. This bank generally duplicates A BANK. They are programmed to lock onto a particular radio site in case of infrastructure failure. <i>If your radio displays ‘site trunking’ on A BANK, try the same talk group on B BANK.</i>		
BANK C	FUNCTION - Coordination	LEAD AGENCY
ICALL	State-wide non-trunked talk groups - a hailing channel	None
ITAC-1	State-wide non-trunked talk groups - tactical operations	None
ITAC-2	State-wide non-trunked talk groups - tactical operations	None
ITAC-3	State-wide non-trunked talk groups - tactical operations	None
ITAC-4	State-wide non-trunked talk groups - tactical operations	None
STATEOPS-3	Simplex talk group, only good for line of sight communications	None
KCEVENT-1	Event specific for King Co. government	KCSO/OEM
KCEVENT-2	Event specific for King Co. government	KCSO/OEM
KCEVENT-3	Event specific for King Co. government	KCSO/OEM
KCEVENT-4	Event specific for King Co. government	KCSO/OEM
KCEVENT-5	Event specific for King Co. government	KCSO/OEM
ALL GOV	Available to all agencies on the system	None
LOGGOV N	Available to all agencies on the system	None
LOGGOV S	Available to all agencies on the system	None
REGROUP	Can be programmed with assistance from Radio Shop to a specific talk group at the time of an event.	